

BIBLICAL CREATION

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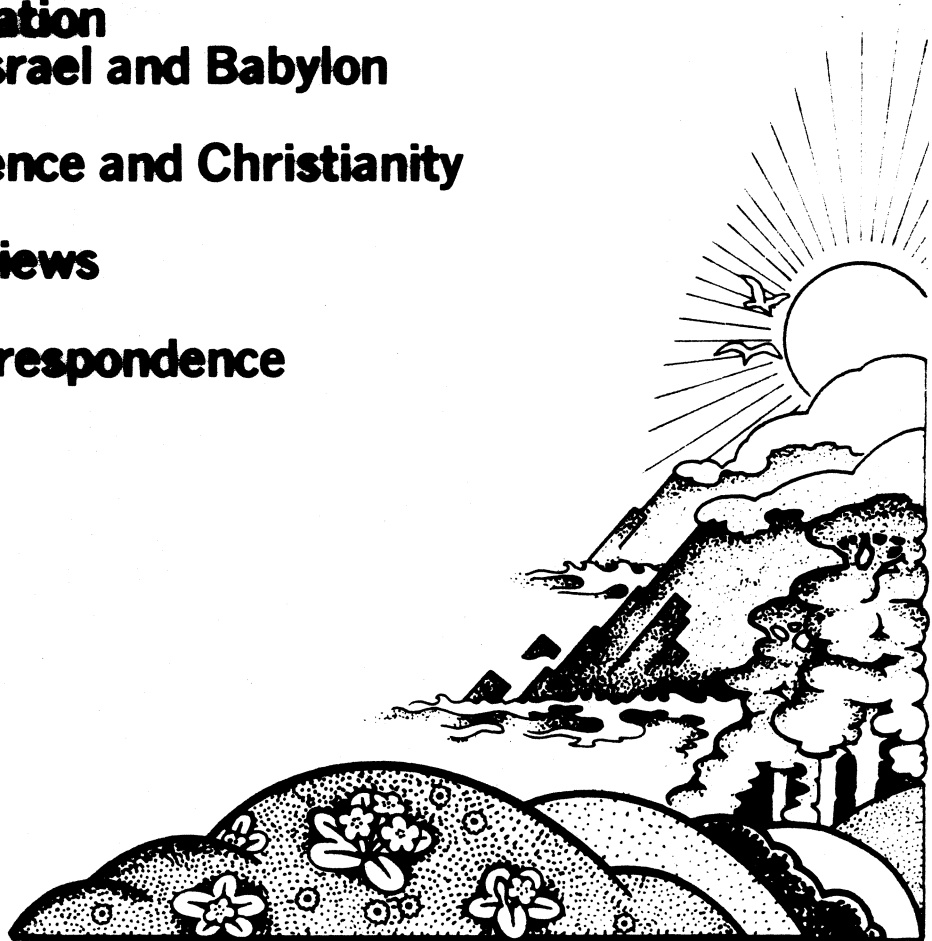
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**Creation
in Israel and Babylon**

Science and Christianity

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EDITORIAL

All Scripture is given by inspiration of God, so the things it reveals are certainties. When these certainties relate to history and the natural world we do not need research to tell us about them, except for research into the meaning of the Biblical text. However, scientific research may corroborate God's revelation when its findings are compatible with Scripture. With regard to certain portions of Scripture, perhaps because of their brevity, the reader may be less than certain as to their meaning and scope. In identifying our God-given certainties, so that we may rest upon them, we must also be aware of these 'less-than-certainties', and try and resolve them.

Many of the foundational certainties of the Christian faith are disclosed in Genesis 1–11: the existence of the Creator and Ruler of the world, the creation of the first human pair, the perfection of the world as originally created, and the space-time tragedy of the Fall. When we turn to a narrative like the Flood story of Genesis 6–8, the historical reality of the event is beyond question despite the fact that questions remain as to its scope and effects. The New Testament categorically affirms the **anthropological universality** of the Flood. That is, the entire human race then living was affected by this divine judgement. Once this is conceded there is a strong presumption in favour of a global flood as distinct from a local inundation in the Mesopotamian regions. When, however, we raise the question of the geological effects of the Flood, we are not dealing with absolute certainties of Divine revelation. Nevertheless, we may seek for fruitful correlations between geological research and various **models** of earth history which assign a significant rôle to the global Flood.

An appreciation of the function of conceptual models is currently fashionable in both scientific and theological studies. This trend is helpful in furthering dialogue between opposing schools of thought. **Biblical Creation** exists both to reaffirm Christian certainties in the area of origins, and to encourage scholarly investigation of the numerous questions — exegetical and scientific — raised by the Biblical teaching on Creation.

David C. Watts

Conference News

The BCS annual Day Conference, to be held at Westminster Chapel on Saturday November 8th, will have as its theme **In the Beginning** Four papers will be given: Dr Gordon McConville on Genesis 1—11; Ranald Macaulay on the Image of God in Man; the Revd Dr Don Carson (from the USA) on Paul and Adam; and Professor Edgar Andrews on Nature and Supernature. In addition, a special closing address will be delivered by a guest speaker. For details see advertising in **Crusade, Third Way**, and elsewhere, or write to **BCS** for quantities of leaflets. The proceedings will be available in the form of an attractive booklet.

A Day Conference is to be held in Edinburgh, at Carrubber's Close Mission in the High Street, on Saturday October 25th, beginning in the early afternoon. This is being organised by the Mission with the help of some **BCS** members. Speakers will be the Revd Dr John Sharp on **What is Science?**, Dr Chris Darnbrough on the origin of life, and Dr Iain Spence on geology. Write for information to Creation Conference, Carrubber's, High St, Edinburgh.

1982 Creation and Origins Conference, to be organised by **BCS**. The provisional dates for this Conference, held once every two years, have just been released as Monday 26th—Thursday 29th July 1982. The Conference will once more be held at Swanwick.

Letters to the editor about the OLD TESTAMENT

c/o Tyndale House,
36, Selwyn Gardens,
Cambridge.

Dear Sir,

I was interested to read the article "The Unity and Harmony of Genesis 1—3" by Mr Cameron. It raises numerous important issues, among which I single out a few here.

First, it is a principle of critical discussion that you should seek, as far as possible, sympathetically to understand the position with which you are disagreeing. Criticism should be directed against a position in its

strongest and best form — for the demolition of men of straw is a waste of everyone's time. Yet unfortunately Mr Cameron's discussion shows insufficient appreciation of the position he is arguing against. Certainly he makes some valid criticisms of individual arguments that have been advanced. But to suppose that the critical distinction between Gen. 1:1–2:4a and 2:4b–3:25 depends on the individual points he lists is to misunderstand the nature of the argument, to fail to see the wood for the trees.

The real basis for assigning Gen. 1 and Gen. 2–3 to different authors is that they are such different kinds of writing. It is indeed true that "authors may use varying styles", but this is hardly the point. Consider, for example, the writings of Paul and John in the NT. That they are distinctive in style and emphasis is uncontroversial. That Paul wrote in many different ways I would not dispute and find, therefore, no difficulty in supposing that the author of Romans should also have written the Pastorals. But what if someone were to suggest Paul as the author of 1 John? To indicate the real theological agreement between 1 Jn. and the Pauline epistles and to appeal to varying style would be beside the point. Surely any feel for literature simply rules the suggestion out.

The issue over the relationship between Gen. 1 and Gen. 2–3 is similar. The difference between these chapters is not perhaps as marked as that between John and Paul, for there is a much smaller compass of material on which to build an assessment of the characteristic traits of each. Yet the difference between Gen. 1 and Gen. 2–3 is akin to that between John and Paul. The 'feel' of the material is simply different. And that is the main reason for assigning the chapters to different authors.

A further problem is that Mr Cameron argues for the 'unity' of Gen. 1–3 without pausing to consider that 'unity' is a flexible and potentially ambiguous term. One may speak quite intelligently of the unity of the Bible, the unity of the OT, the unity of a particular book within the OT, the unity of a section of that book, the unity of a chapter, of a paragraph, of a verse. Yet clearly one does not mean exactly the same thing by 'unity' in each case. Few would dispute that Gen. 1 is a unity, that is that it is a homogenous composition by a single author. No one would dispute that the Bible is a collection of heterogeneous material from many different times and places. Yet it is still in a real and profound sense a unity. The point is that the implications of 'unity' vary. For the larger the compass of material designated as a unity, the greater the tolerance level of diversity within that unity.

Another way of posing the issue is to distinguish between unity which is inherent in material and that which is imposed upon it. In this latter case someone has seen that different units of material, though diverse in origin, yet may be read together on the grounds that they are in fundamental agreement with each other and illuminate one another.

That Gen. 1—3 is a unity in this latter sense is clear. The two accounts of creation are to be read together as complementary and as mutually illuminating. And indeed the links now binding them together are even closer than Mr Cameron indicates. But the fact that they are a genuine unity in this sense does not entail that they are a unity in the other sense. It also raises the question of why it should matter that the chapters should be an original unity in the way that Mr Cameron wishes to argue. For the unity of originally diverse material, brought together as complementary, is still a real unity.

I am wholly in accord with the desire to take seriously the early chapters of Genesis. It is for this reason that I offer what are, I hope, constructive criticisms of Mr Cameron's article, with a view to furthering our understanding of the biblical text.

R.W.L. Moberly

Response

Mr Moberly is of course quite right when he suggests that I have simplified the questions about which I wrote. **Biblical Creation** is a semi-popular journal, and both the science and the theology we carry is at a level different from that of technical journals. But I would reject the suggestion that in the interests of simplicity (or out of misunderstanding) I misrepresented the questions at stake.

'To suppose', writes Mr Moberly, 'that the critical distinction . . . depends on the individual points he lists is to misunderstand the nature of the argument.' 'The real basis for assigning Gen. 1 and Gen. 2—3 to different authors is that they are such different kinds of writing.' As I explained in the article, the argument is largely an argument of the nineteenth century. Since then little has been written actually **arguing** in favour of the 'critical' position; it has, rather, been assumed. I have read fairly extensively the British 'critical' literature of the nineteenth century, and am at a loss to understand what Mr Moberly means by this distinction. The critics do not express themselves in the way in which he does. On the contrary, they reveal their feeling about 'different kinds of writing' by arguing about detailed questions in the way I indicated. At the risk of boring the reader, let me instance the classic critical work of its day,

Driver's **Introduction to the Literature of the Old Testament**, p 6: 'As soon as the book (of Genesis) is studied with sufficient attention, phenomena disclose themselves which show incontrovertibly that it is composed of distinct documents or sources. . . . These phenomena are very numerous; but they may be reduced in the main to the two following heads: (1) the same event is doubly recorded; (2) the language, and frequently the representation as well, varies in different sections. . . .' Driver goes on to elaborate just the argument with which I ventured to disagree in **BC6**. I do not regard Driver as a man of straw.

At the same time, I do not doubt that there are real differences between Gen. 1 and Gen. 2–3. Their unity is a unity in diversity — for instance, as I pointed out, they both reveal different aspects of the nature of God. Indeed, that Moses, or whoever compiled Genesis, may have had earlier sources before him as he wrote, I do not wish to deny. What must be controverted is the suggestion that they were **mutually contradictory sources**, or that they **duplicated a single event** in two narratives. It is positions of this type, advanced under the name of literary analysis, which I would resist.

The problem with the analysis of the Graf-Wellhausen school is that, if its conclusions are accepted, they are subversive of the authority of Scripture. The unity which it remains possible to hold that these diverse documents reveal is so tenuous and arbitrary a quality as to have no real significance. One author conceived of God as like this, another of Him as like that. One considered the earth originated thus, another that it originated in some alternative fashion. This method sets one part of Scripture over against another, and does so in a manner that makes the harmonising exegesis demanded by confession of the plenary authority of Scripture simply impossible. If all Scripture carries the authority of God, all Scripture must speak with one voice.

The matter is well put by Mr Moberly in his sixth paragraph. There is a unity inherent in material, and a unity imposed upon it. Surely the unity of the Biblical material is inherent — inhering in the inspiration of all the material by one God and to one end: the revelation of Himself and His will. To that end He has, indeed, inspired much apparently diverse literature. But inspired diversity cannot involve contradiction. Unity underlies it, and consequently a harmonistic method is the method best suited to its study.

We cannot pursue the matter further in this limited space. Suffice it to say that until very recently the unanimous voice of evangelical scholarship has rejected so-called 'literary criticism' as a valid aid to Biblical understanding, and for good reason. I see nothing in what Mr Moberly has said to make me wish to break with that consensus. Does he really wish to do so?

N.M. de S. Cameron

Following Desmond Alexander's recent contribution on the word toledoth in Genesis, Mr Colin McGreevy has sent us this further reflection on the term. Our interest in Genesis and the creation question involves us in the wider question of Biblical theology as a whole.

8 Highfield Park,
Maghull,
Liverpool, L31 6EA.

Sir,

Regarding D. Alexander's article (BC 2:5) I would suggest that we should look to the N.T. for the indication to the translation(s) of "toledoth". The first sentence of the N.T. according to the A.V. begins "The book of the generation of Jesus Christ . . ." The word translated as "generation" is "genesis" though elsewhere the word for generation is "genea". There is a similarity between the words "genesis" and "genea", but my personal opinion is that they relate more nearly as do the Hebrew words "toledoth" and "dor". Significantly the word for "regeneration" (palingenesia) is very similar to "genesis".

The Lord Jesus said "Ye must be born again" and I used to think this was a command when it is a statement of fact. The word for "must" (dei=it behoves that) stresses the utter necessity of the new birth. We can and do praise God for the wonders of salvation, redemption, forgiveness, sonship, priesthood and all the glorious facets of the eternal life, but they are all part of or dependent on the new birth.

Does the "generation of Jesus Christ" refer to the "generating" of Jesus Christ (God's only begotten) or the generation of Jesus Christ in the believer (new birth) or perhaps both? It is significant that the Bible (book) begins with the "generations (creations) of the heavens and the earth" almost as a prologue before it starts "the book of the generations (plural) of Adam", and the scriptures then show repeatedly how that generation keeps generating Adam again and again so that all have come short of the glory of God, until we reach the (second) "book of the generation (singular) of Jesus Christ" where, by that one wonderful generation of (and by) the second man and last Adam, we may be regenerated and walk in newness of life. Hallelujah! The Bible ends with the epilogue of the creation (generation) of the new heaven and earth.

Just as the fruit, in a sense, is contained in and governed by the seed, so in a similar sense, the life is contained in and governed by the generation. I would therefore suggest that "toledoth" might usefully be translated as meaning both the "births" and the "issue", but with the emphasis on birth which is the necessity.

Yours
Colin McGreevy

TEACHING SCIENCE IN A CHRISTIAN PERSPECTIVE

John Sharp

We live in a scientific and technological age. Our lives, individually and corporately, are dominated by the thought forms and artifacts of natural science. Our age has transferred its basic creaturely response of faith from God to scientific and technological progress. "In a society that pays ritual homage to our great secular cathedrals (sc. universities), 'scientific' and 'research' are holy words, and 'scholarship' is almost synonymous with saintliness." (1) It is science and technology that has made possible the affluence and material progress of the 20th century. But a warning note needs to be sounded for "paradoxical as it sounds, in the course of the last century science has become so dizzy with its own successes, that it has forgotten to ask the pertinent questions." (2)

There are indeed many critical questions pertinent to a valid understanding of the natural sciences. Among these, often ignored and little discussed, questions are the following:

- (A) What is science? What is scientific method?
- (B) What is the relation of science to Christian faith? Is it:
 - (1) warfare — the implacable opposition of science and religion;
 - (2) divorce — science and religion have nothing to do with each other;
 - (3) complementary — science and religion are two aspects of reality, often seen as spectator language (science) and participant language (religion); or
 - (4) symbiosis — an organic relationship exists between science and religion?

- (C) What are the origins of modern science?
- (D) Is there a theological foundation for science? If so — what?
- (E) Where does science fit into the purpose of God?

These, it seems to me, are central questions for the Christian concerning the teaching of science within a Christian perspective.

(A) WHAT IS SCIENCE?

It is popularly believed that science has replaced Christianity as a sure and safe basis on which to build a way of life. Science is the final court of appeal. Today it would appear that even ministers of the gospel are a bit embarrassed at defending the Genesis account of creation against the widely held Darwinian theory of evolution. This is, even if not theoretically held by Christians, seen **de facto** in many Christian writings and lifestyles. Science is seen to make claims about the nature of reality that are objective and solely dependent upon incontrovertible observed facts. It is claimed that science is free from distorting presuppositions; that it is based firmly on facts; and derives laws of nature that are objective and impersonal, and as such are irrevocable. As T.H. Huxley claimed: "Sit down before fact as a little child, be prepared to give up every preconceived notion, follow humbly wherever and to whatever abysses nature leads, or you will learn nothing."(3)

At the heart of this confidence in science lies an unshakeable faith in the scientific method. It is popularly thought and taught that scientists "arrive at their discoveries by reasoning in strictly rational, precise verbal terms."(4) As every schoolboy knows the sciences are empirically determined and hence easily distinguished from such topics as religion, art and ethics. This empirical constitution of science means that it must be religiously and philosophically neutral. Scientists begin with hard reality, none of this wild philosophical speculation or religious dogmatism. They begin with the empirical collection of the facts/observations/data of the universe around, which yield on inspection some order from which a hypothesis can be formed, tested, and if sufficiently verified pass to the status of a scientific law — such as the laws of motion, the law of gravity, the laws of thermodynamics etc. This scientific method, this sitting down obediently before the facts, is deemed to be the only road to scientific truth. This is the inductive method of science, and it is grounded in an empirical approach to reality. As Galileo noted: "In every hypothesis of reason, error may lurk unnoticed, but a discovery of sense cannot be at odds with the truth."(5)

Unfortunately most schoolboys are wrong — and perhaps teachers also! This view of science is quite erroneous. First of all sensory experience/careful observations/that which is deemed hard data can be wrong or misleading. Kepler records in his notebook after making careful observations through a telescope that "Mars is square and intensely

coloured.”(6) Bertrand Russell tells a delightful story about an inductivist turkey. This turkey found, on his first morning at the turkey farm, that he was fed at 9.00 a.m. However, being a good scientific turkey, he did not jump to any hasty conclusions. He waited until he had collected a large number of observations of the fact that he was fed at 9.00 a.m., and he made his observations under a wide variety of circumstances, on Mondays and Fridays, on wet days and dry days, on warm days and cold days. Each day he added another observation statement to his list. Finally his scientific conscience was satisfied and he carried out an inductive inference to conclude: ‘I am always fed at 9.00 a.m.’ Interestingly the scientific turkey made his scientific conclusion on Christmas Eve!

We cannot just begin by gathering facts, or making observations. Karl Popper likes to tell the story of what he did with his students. He entered the classroom and told them ‘Observe!’ The students looked round the room blankly until finally one student would ask ‘Observe what?’ To simply observe without some preconceived notion of what we are looking for is to be buried under a sheer avalanche of facts. Thus, in the beginning, a scientist will select certain things to be looked for, and he will do so in line with some already held theory.

Let me give another illustration of this problem. It is claimed that the basis of scientific knowledge is provided by observations made by an unprejudiced and unbiased observer. However, if interpreted literally this position is absurd. Imagine Heinrich Hertz, in 1888, performing the electrical experiment that enabled him to produce and detect radio waves. If he is totally unbiased in his observations he will have to record the readings of various meters, the presence or absence of sparks at various critical locations in the electrical circuits, the dimensions of the circuit, etc. But he will also have, if unbiased, to note the state of the weather, the colour of the meters, the dimensions of the laboratory, the size of his shoes and a whole list of ‘irrelevant’ details. Irrelevant, that is, to the theory in which Hertz was interested and which he was testing — namely Maxwell’s electromagnetic theory to see if he could produce the radio waves predicted by the theory. Oddly enough, one of the above ‘irrelevant’ factors was crucial. It was a consequence of the theory under test that radio waves should have a velocity equal to the velocity of light. When Hertz measured the velocity of his radio waves he found that their velocity was significantly different from that of light. He never solved this problem. Only after his death was the mystery unravelled. Radio waves emitted by his apparatus were being reflected from the walls of his laboratory back onto the apparatus and so interfering with his measurements. It turned out that the laboratory dimensions were crucially relevant.

The non-objectivity of science is further seen in the changing theory of matter. A totally objective ‘law’, once discovered, should stand for all times and all places. But the reality of science is that theories come and go, or are developed out of all recognition. Yet if something absolutely

true had been discovered it should not be open to change, adaption or discarding. Think of the proton. Just a few weeks ago I saw a higher textbook which described the atom as a mini-solar system of nucleus (neutrons and protons) and orbiting electrons. But just consider the proton. In the 1920s the proton was considered to be a very small object in the heart of a hydrogen atom. By the 1950s it was seen as a small object with mesons in its vicinity. By the 1960s it was deemed to be a fairly large object (with respect to electrons) which was denser at its centre. By the early 1970s it was regarded as a large object containing smaller objects. Today a theoretical picture is posited of the proton as consisting of three 'quarks' exchanging 'gluons' — at which point this particular tale becomes complex!

The non-objectivity of science is seen in the way in which theories are formed prior to observation or experiments taking place. Newton, for example, predicted the motion of the moon's perigee which for 60 years stayed at only half the observed value. This situation prevailed until 1750 when Clairaut showed that his value was satisfactory, his theory correct, and that it was the mathematical application of the theory which had been erroneous. Charles Darwin formulated his theory of atoll-formation in a purely deductive spirit long before he ever visited a coral-reef (so also his theory of evolution). Harvey, in formulating his theory of the circulation of the blood, postulated capillaries which were not discovered until much later. Einstein postulated in 1916 that light should bend and retard in a gravitational field. The bending effect was first confirmed by Eddington in 1919, and the retardation effect was not observed until 1967 when Shapiro achieved this effect by reflecting radar signals off Mercury when it was nearly behind the sun.

The non-objectivity of science is seen in the way scientists see what they want to see. A number of eminent geologists have visited the 'parallel roads' of Glen Roy. These are strange, horizontal, road-like phenomena. Darwin held that they were clearly caused by the sea — due to his experience of earthquakes and raised beaches in S.America. Agassiz, however, held that they were caused by the action of lakes dammed up in the ice-age — drawing on his experience of glaciers in Switzerland. So the two saw quite different 'things' on the basis of their assumptions and training. Again: in 1903 a French physicist, Blondlot, thought he had found a new ray — the N-ray. His apparatus was a hot platinum wire inside an iron tube which had a small window in it. The N-rays, which could not pass through the iron, came out the window and were detected by falling on a very faintly illuminated screen in a dark room. The slight increase in the screen intensity indicated the presence of the rays. Blondlot saw the rays had various properties — objects could store them, people could emit them, noise interfered with them. Even negative N-rays were observed. One day R.W. Wood visited Blondlot who was now studying the refraction of N-rays through an aluminium prism. Blondlot had now found that N-rays were not monochromatic but were made up of

a number of components with different refractive indices. Unseen by Blondlot, Wood removed the prism. This should have stopped the experiment. But Blondlot continued to detect on the screen the same pattern of signals. It turned out that the experience of N-rays was simply Blondlot's belief in them. The problem here was that of detection at the threshold of sensation.

There are in fact many divergent ideas as to what science is. Some believe that scientific theories are merely instruments, neither true nor false, with which to manipulate and make predictions. Odd as it may sound this is a dominant idea in modern science — that its theories are neither true nor false. It largely stems from the theoretical replacement of Newton by Einstein when the theories of Newtonian mechanics were perhaps the most strongly verified of all time. Yet Einstein and Newton cannot both be designated 'true' in the same sense. But both are useful. In fact while Newton's system is probably not 'true' we actually use it for the majority of scientific applications — such as putting men on the moon. In the same vein we can also think of the apparently irreconcilable nature of light as waves and particles. The history of science has had a long controversy as to whether light was in essence wave-like or particle-like. At various times crucial 'proofs' have backed both. It now appears that these two apparently mutually exclusive concepts are necessary to deal with the phenomena of light.

So given that there are different concepts of what science is — such as essentialism, instrumentalism, idealism, realism, positivism, etc. — it follows that there can be no one scientific method. Each concept of science has its own peculiar idea of what scientific method will be. (1*)

1* Essentialism: is the doctrine that science aims at ultimate explanation — that is, an explanation which by its very nature cannot be further explained.

Instrumentalism: the theory that scientific laws/theories are instruments for predicting observable phenomena, and are therefore to be judged by their usefulness and not as propositions which can be 'true' or 'false'.

Idealism: this emphasises the contribution of the knower and hence envisages the structures of laws/theories as entirely imposed by the mind on the chaos of sensory data.

Realism: in distinction from positivism it sees that the real is not equatable with the observable; against instrumentalism it holds that valid concepts are true as well as useful; against idealism it sees concepts as representing the structure of events in the world. Science is seen as discovery and exploration as well as construction and invention.

Positivism: a theory is viewed as a summary of data. In logical positivism it is said that something is meaningful, if and only if, it is either empirically verifiable by observation through the senses, or is a tautology of logic or mathematics.

Thus whatever science is, it is not as objective as is popularly believed, there is no simple sitting before the facts as enjoined by Huxley. As Galileo, that doyen of empirical science wrote:(7)

"I cannot sufficiently admire the eminence of these men's wits, that have received and hold it (sc. Copernicus' theory) to be true, and with the sprightliness of their judgements offered such violence to their own senses, as that they have been able to prefer that which their reason dictated to them, to that which sensible experiment represented most manifestly to the contrary. . . . I cannot find any bounds for my admiration, how that reason was able in Aristarchus and Copernicus to commit such a rape on the senses, as in despite thereof to make herself mistress of their credulity."

Or as Huxley himself noted: (8)

"It is a popular delusion that the scientific enquirer is under an obligation not to go beyond generalisation of observed facts . . . but anyone who is practically acquainted with scientific work is aware that those who refuse to go beyond the facts, rarely get as far."

The reality of science is that the individual has preconceived notions of how things should be. He makes the impositions on reality. As Eddington graphically wrote of the scientific role of the mind: "We picture the mind like an editor in his sanctum receiving through the nerves scrappy messages from all over the outside world, and making a story with them with, I fear, a good deal of editorial invention." (9) Scientific theories are never the result of pure objectivity but are ever mixed with our longing for beauty, simplicity, elegance, consistency and coherence — all of which have their part to play in theory-formation.

What then is science? It seems to me that any Christian approach will recognise the futility of a rationalistic base for knowledge. There is a vast gulf between the uniformity of cause and effect within a closed system (as in modern science) and the uniformity of cause and effect in a system open to God's providence (as in the founders of modern science). Thus essentialism and positivism are inherently fallacious in structure while the subjective approaches of instrumentalism and idealism are also inadequate. When man tries to interpret concrete reality in terms of an aspect of that reality he inevitably enters a regressive reductionism. The Christian, in service before God, will point to the essential unity as well as the clear diversity of creation **as a created order**, and not just as something which happens to be there and which we can look at. Hence scientific theories will be formulated, not only as they relate internally to other theories and externally to the physical world, but also in their place and relationship within the Christian belief in creation, and law-structure for that creation.

So I believe we can move towards a tentative definition of scientific

laws as man-made-representations, of varying degrees of validity (in word or mathematical symbol) of the constant patterns by which the personal-infinite God works in ruling His creation. Any formulation of scientific laws, however, remains imperfect. Yet we can hold that they are intended to imply and reflect a degree of truth.

(B) THE RELATION OF SCIENCE TO CHRISTIANITY

(1) Warfare Model. Stemming from the Enlightenment and the theory of evolution many see science and Christianity, particularly the Bible, as implacably opposed to one another. We can think of such notable works as J.W. Draper's **History of the Conflict between Religion and Science** (1875); A.D. White's **A History of the Warfare of Science with Theology in Christendom** (1895); and J.Y. Simpson's **Landmarks in the Struggle Between Science and Religion** (1925) — all these titles are revealing. While this position may not be as formally prominent today it still grips the popular imagination. A quick look at the **New Humanist** magazine will soon indicate that there are still those who see science and Christianity at war with one another.

(2) Divorce Model. This arose as a Christian response to (1) and seeks to keep the two realms quite distinct. Religion is in the arena of grace; science is in the arena of nature. Alan Richardson provides an excellent example of this position when he claims that theology "is indifferent" to the choice of a cosmology.⁽¹⁰⁾ This indeed seems the current theological consensus, a clear discontinuity being argued for except where science and belief jointly impinge on morality.

This view can be criticised in dividing experience into autonomous realms, allowing religion to control a religious-aspect and science a scientific-aspect of life. This assumes that fences can be built to delineate these territories, and smacks of a God-of-the-gaps mentality. It presupposes and sustains a dichotomy in man's existence.

(3) Complementary Model. This is a special case of (2) and seeks to hold the two sides of science and religion together in a complementary tension. Philosophically it derives from the ideas of Bohr and Wittgenstein. It conceives science and religion to be dealing with two mutually exclusive aspects of reality. Let me quote a passage from Donald MacKay, and note how he divides things up into 'scientist' and 'Christian' activities: (11)

"As a scientist, I have the job of helping to build in scientific language — at the scientific level — as complete a description of the pattern of physical events as I can, regarding no accessible events as exempt from examination. As a Christian, I find that the very same pattern of events can bear an additional and vital significance as part of the activity of God himself."

Note the comparison of 'scientist' and 'Christian' and the idea that the Christian has an 'additional' something to add on. It nearly appears in

this sense as though Christian faith is an optional extra for science.(2*)

MacKay illustrates the complementary aspect of different horizons of knowledge as follows. Two people are sitting on a cliff top overlooking the sea; a light is seen flashing on and off out at sea. One of the men, a keen physicist who carries all sorts of scientific equipment in the back of his car, says that given a little time he will give a full account of the wavelength, emission rate, frequency, etc, of the flashing light. His friend, however, is worried because in his youth he learned morse. Eventually he works out that the light is telling them that the cliff they are sitting on is about to crumble into the sea. "The point is," writes MacKay, "that before one too readily sees two assertions about the same phenomenon being contradictory, one should be sure that they are not in fact logically complementary."(13)

This is a very attractive illustration, but I must contend that the two explanations are **not** really complementary. While the physicist's account of the light was, perhaps, exhaustive at the physical level, it was quite lacking an integral knowledge of the significance of the light. The light is not a physical abstraction; it occurs in a context. The light **in this context** is qualified in meaning by the social function it bears, its communication content, and not by physical analysis. The meaning of the light is not given in the understanding of its frequency, emission-rate, etc., but in the social importance it bears. The danger of the scientist is ever of forgetting that his discipline makes an abstraction from reality.

The idea of complementarity is further seen in the widely quoted words of Max Planck: (14)

Religion and natural science are fighting a joint battle in an incessant, never relaxing crusade against scepticism and against dogmatism, against disbelief and against superstition, and the rallying cry in this crusade has always been, and always will be: 'On to God'."

But this will not do for the Christian. Paul said: 'For of him, and through him, and to him, are all things. . .' (Rom.11:36). And again: "Whether therefore ye eat, or drink, or whatsoever ye do, do all to the glory of God." (1 Cor.10:31 — cf. 2 Cor.10:5 and Col.3:22—24). This is not the language of some additional significance; this is not language which sees itself moving on to God; but the language of one who sees all things as having their origin and continuance, as well as their goal, in Christ.

2* MacKay seems caught in an inner tension in his own writings at this point as the following quotation indicates: "The essential point made in the Bible, and in a sense, I think, the key to the whole problem of the relation of science to the Christian faith, is that God, and God's activity, come in not only as extras here and there, but everywhere. If God is active in any part of the physical world, he is in all. If the divine activity means anything, then **all** the events of what we call the physical world are dependent on that activity."(12) With this I agree, but not quote (11).

The complementary approach will not do. As we have already seen, science is not as objective/neutral as is often implied. Science by its nature extracts from reality; it examines some aspect of concrete reality such as the physical, chemical, numerical, spatial, kinematical. But an aspect is never constitutive of the whole; and there is always a worldview exercising directing control on how abstraction and analysis are carried out. All our scientific work, as abstractive, is conditioned by worldviews, beliefs, assumptions and training. Such worldviews, beliefs, assumptions and training are religiously determined either to God or away from God. Man's life in its entirety is religious.

A worldview, and we all have one, depends on an origin — in God, self, or some external facet of created reality; and on an archimedian point — either in Christ or some aspect of autonomous rationalistic thinking in separation from Christ. Science deals with knowledge (cf. Lat. **scientia**) and true knowledge is dependent in an ultimate sense on the knowledge of God. The point is: do we think the claim of the Word of God empty rhetoric or do we really work this out in our daily thought and in our scientific activity?

(4) Symbiotic Model. The symbiotic model presents what I believe is a consistent Biblical understanding of the relation of science to Christianity. That is, there is a living, organic relationship between the two. They are intertwined one with the other, with religion forming the foundation for scientific activity and motivation. In this model we realise there is no confusion between the Word and Works of God, between the Book of God and the book of nature. As Robert Boyle claimed:(15)

“... if we lay aside all the irrational opinions, that are unreasonably fathered on the Christian religion, and all erroneous conceits repugnant to Christianity, which have been groundlessly fathered upon Philosophy, the seeming contradictions betwixt Divinity and true Philosophy, will be but few, and the real ones none at all.”

The Christian scientist will always be conscious that he depends on God for insight and understanding. He will be conscious that he deals, not with an autonomous nature, but with God's creation. He seeks to unfold the mysteries of God's continuing providence in creation. We must be careful in talking about 'laws of nature' not to place too much stress on the 'of' nature. The laws we unfold do not belong to 'nature' as some autonomous force. Interestingly Robert Boyle pointed out the dangers of the phrase 'law of nature' leading to an autonomous 'Nature' and correctly noted that the scientist in fact deals with the 'laws of God' concerning the physical creation. Significantly Hebrew has no corresponding word to our 'nature'. Robinson remarks:(16)

“The Hebrew vocabulary includes no word equivalent to our term 'Nature'. This is not surprising if by 'Nature' we mean 'The creative and regulative physical power which is conceived of as operating in the

physical world as the immediate cause of all phenomena.' The only way to render this idea into Hebrew would be to say simply 'God'."

(C) THE ORIGINS OF MODERN SCIENCE

It seems to me that we are needing fresh insight to the influence of Reformed thought on the rise of science. History appears to indicate that science as we know it was founded and flourished in the lands of the Reformation. It was the Puritans of England who put science into the school timetable. It was in the Calvinistic universities that science flourished. Dutchmen and Scotsmen flock through the pages of the history of modern science in the 17th and 18th centuries, while there are few Irishmen or Spaniards. Indeed the early modern scientists saw themselves as responding positively to God and working in His creation. Men like Kepler, Boyle, Newton and Ray were not pious out of social convention, but because they had a deep and passionate commitment to God and sought to unfold the laws He had given to His creation.

(D/E) THEOLOGICAL FOUNDATION OF SCIENCE

This is a subject requiring a paper in itself, therefore I will be brief and merely sketch in what I see as the theological foundations of science.

(1) God is creator. In science we seek to unfold the mysteries, not of Nature with a capital 'N', but of the creation of God.

(2) Creation is ruled by the laws of God. This idea of law and a law-giver is foundational in science. The law-idea is a particular contribution to science by the Christian faith. We live in a law-structured creation which can be rationally examined, but not rationalistically examined, before God. This helps to explain why science as we know it did not develop to any extent in ancient Greece, China or India.

(3) Science deals with the realm of God's natural or general revelation to man, in distinction from His special revelation in Christ and Scripture. We must note that in the details of science Scripture is not primary.

"(Scripture) has a lot to say about certain things, little to say about others and nothing to say about some things. For instance it has a lot to say about guilt and forgiveness, something to say about the geography of the Middle East, but nothing at all to say about the structure of the atom or the predicate calculus. Paradoxical though it may be, it seems that the teaching of Scripture about many matters is that it has nothing to teach about these matters."(17)

Certainly the Bible has things to teach us in our science but we must be extremely careful in how we use it. The Bible is not meant to be a scientific textbook, though I defend the scientific assertions therein as accurate.

(4) There are the doctrines of cultural activity which also lie at the basis of science. Here we must consider 'common grace' (eg. Gen.8:21,22); the

'cultural mandate' to care for and build up the creation (eg. Gen.1:28); and the idea of man as God's office bearer in creation.

* * * *

Let me finish with a practical example of teaching science in a Christian perspective. I am indebted to Arnold de Graff for this illustration. How should we teach the weather? Secular textbooks tell us that the weather is the result of interrelationship and interaction of land, air and water, and the earth's position with regards the sun and moon. The weather is explained in terms of air pressure, temperature, wind velocities and so on. Perhaps we are happy with this, we see nothing wrong with this as an adequate explanation of weather. But it is a gross distortion of a Christian view.

The weather is the creature of God, consequently we find in our Bibles that it is referred to as His messenger and servant — read the Psalms or Job. The Flood of Genesis is a sign of God's judgement; the rainbow is a sign of God's faithfulness. We can think of Elijah praying for a drought and it coming to pass; and of his later praying for rain and that coming to pass. We can think of a storm arising at God's hand so that Jonah be brought to repentance and obedience; and, of course, we remember how Jesus commanded the wind and the waves.

The weather is not to be seen as shut up in the sense of a sequence of cause and effect within a closed system. We live in a creation that is open to God, that is under His control, that is upheld existentially by Him. The secular textbooks are reductionistic; they do not comprehend the full mystery and wonder of weather which is far more than physical abstractions. Of course we need to teach our children all about the physical abstractions that pertain to weather — air pressure etc. — but we must always remember that these are only the explanations of abstracted aspects of what weather really is. They also need to learn that weather causes feelings in us — of beauty and fear, of comfort and discomfort. They need to learn that weather affects our bodies — cold and heat; affects our up-building of creation — in growing crops. But above all they must learn that the deepest and ultimate meaning of weather is that it is an expression of God's power and Lordship, of His love and care, of His anger and judgements. Weather is the creature of God under the control of the law of God.

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THE HEBREW AND BABYLONIAN CREATION NARRATIVES

M.C. Buss

It is a universal phenomenon that the races and tribes of this planet have their mythical or legendary stories explaining creation and origins. According to modern critical scholarship the Hebrews had their myths too: they are recorded in Genesis 1–11.

Some of the non-biblical stories are so far removed in content from the biblical account that they must pass beyond the scope of this paper. Others, from Sumerian and Babylonian sources, bear such an obvious kinship with the Genesis record that scholars have searched for the links between them. The parallels are such that many scholars have concluded that the biblical passages are founded upon the Babylonian exemplars. Zimmern stated: "The Israelitish cosmogony* must have been borrowed directly or indirectly from the Babylonian"(1), whilst Cheyne also detected Egyptian and even Persian influence in Genesis 1:1–2:4a(2). The implications of these assertions are far-reaching. If true, they may be thought damaging to belief in the Bible as the Word of God and as an accurate account of the Creation, Fall and Flood. They may be considered tantamount to a denial that the Bible has any significance in the pursuit of our knowledge of origins, and a claim that it is removed, totally, from the arena of discussion on evolution/creation.

The school sixth-former or university undergraduate may find his own faith seriously tested by these implications unless he can find material competent to assess the relation between the Bible and the ANE myths from the point of view of belief in the former. The two most valuable books in this respect, to which I am much indebted, are **The Babylonian Genesis** (1942) and **The Gilgamesh Epic and Old Testament Parallels**

*cosmology: science or philosophy of the universe
cosmogony: theory of the creation of the universe

(1946), both by Alexander Heidel of the Oriental Institute at the University of Chicago(3).

The material under review falls into two categories: creation stories and flood stories. Sir James Frazer gives an ample account of these in his three-volume work, **Folk Lore in the Old Testament**(4). Some of the legends from the American Indians, and tribes in Africa, Borneo, New Guinea, the Pacific Islands and parts of Australia even reflect a belief in an evolutionary origin of man from trees, animals, fish and grubs! Most of the legends are creationary and derive from as far afield as Australia, Tahiti, Russia, Borneo, the Philippines, India, Africa, Greece and America. In them divine personages moulded doll-like beings out of existent material — clay is very common — sometimes mixed with divine blood, and gave them life. For the most part the primitive stuff of the universe seems to be as original as the gods who shaped it into the earth. But, as one would expect, the closest correspondences in detail with the biblical account are to be found where there is the closest geographical and cultural affinity. The most important story for comparison is the **Enûma elish**, a Babylonian poem about the gods and the creation of the world.

The name is derived from the opening words of the poem which mean "When above. . ." It is recorded on seven clay tablets and just exceeds 1000 lines. The first fragments were found amongst the ruins of King Ashurbanipal's (668-630 B.C.) great library at Nineveh during excavations from 1846-76. Subsequent digs unearthed further fragments and versions. Careful comparison and editing have resulted in an almost complete restoration of the text. In view of the contents of the poem, when seen against the background of the known history of Babylon, its origin must be pushed back into the First Dynasty, 1894-1595 B.C. This dating is important, for it is the period of Abraham's history. It is 500 years before Moses could possibly have written Genesis. Even before the great Babylonian era there stretched 1500 years of Sumerian history. It is a mystery as to where these people came from, but the Akkadian and Babylonian cultures took over as they diminished. The point is that many of the names in **Enûma elish** are proved to be Sumerian, which indicates an even older tradition.

Heidel states that "**Enûma elish** is not primarily a creation story at all"(5). He argues that its prime object is to offer cosmological reasons for the advancement of the god Marduk to the position of head of the entire Babylonian pantheon. This, furthermore, lent strength to Babylon's claim to supremacy over all the other cities of the land. It was, therefore, a political tract as well as a religious one (6).

The story is as follows. Originally there existed nothing except the divine parents, Apsû and Tiāmat, with their son Mummu. Apsû was the primeval sweet-water, and Tiāmat the salt-water ocean. Mummu probably represented the mist rising from the two bodies of water. In addition to Mummu there were born, in due course, two divine brother and sister

pairs, Lahmu and Lahamu, Anshar and Kishar. To the second pair was born a son, Anu (the sky-god), who begot Nudimmud. Nudimmud is better known subsequently as Enki or Ea, a god of great wisdom and strength. He represented the subterranean sweet waters, was a god of magic and mastermind of all the gods. As Apsû and Tiāmat grew old and peace-loving the calm was constantly being broken by the riotous, hilarious assemblies of the younger gods. Apsû became so exasperated with them all that he and Mummu put it to Tiāmat that the children should be destroyed. That certainly calmed down the noisy gods, but out of their gloom Ea hatched a plan to conquer his great-grandfather. He suffused Apsû with sleep, stole his crown and supernatural radiance, then slew him. Tiāmat was unconcerned, for she had not really approved of Apsû's plan to destroy all the family.

Ea now made a spacious abode and called it "Apsû", where also his son Marduk was born. Marduk grew to be an impressive god and Ea conferred on him "double equality with the gods". But meanwhile Tiāmat was growing restless. Dissension developed amongst the gods with Kingu and others taking Tiāmat's part. They disapproved of Ea's brutal murder of Apsû. Tiāmat took Kingu as her husband and they, with their helpers, became a demoniac force plotting the overthrow of Ea. When the plot was made known to Ea, the gods, in disarray, were in a sorry plight. Then Ea remembered the potential of his son, Marduk. It was agreed that he should fight Tiāmat to deliver the (good) gods from their evil enemies. Accordingly, all the gods were assembled at a magnificent feast. Marduk was set upon a throne to take sovereignty and receive homage. Then preparations for a fight with Tiāmat were made with formidable weapons. With bow, arrow and club, lightning preceded him: fire filled his body. Great winds, storms and floods raged.

The battle was awful. Marduk and the great primeval goddess engaged in mortal combat. As Tiāmat opened her mouth to devour him, Marduk shot an arrow down her throat, killing her. The enemy gods were imprisoned and Marduk became supreme god. With the corpse of Tiāmat he made the world. He split her skull, drained her blood, and divided her huge body in half to form two parts of the universe. With half he formed the sky, and with half he formed the earth, setting moon and stars in their places, by which the times and seasons would be regulated.

The last crucial phase then followed. The captive gods, who had given their help to Tiāmat, were made to be slaves providing for the sustenance of the other gods. Since they complained that the task was too burdensome and pleaded for relief, Marduk resolved to create man and impose on him the service which the defeated deities were meant to render. Kingu was indicted before a heavenly tribunal for leading the revolt. He was bound, and Ea, with help from other gods, slit his arteries and created mankind with his blood, according to the plan of Marduk. Man now took over the task of feeding the host of Babylonian gods. By now the gods had multi-

plied and Marduk was able to assign 300 to the heavens and 300 to the earth — all with appropriate tasks. These gods, so grateful for deliverance from Tiāmat, built the city of Babylon and Esagila, the great temple of Marduk. Finally, the gods, in assembly, conferred upon Marduk fifty titles to establish his pre-eminence in the pantheon. The poem concludes with an exhortation to the people to remember the fifty names and rejoice in Marduk.

Family Tree of Babylonian Divinities

(sweet water ocean) Apsû = Tiāmat (salt water ocean) (= Kingu)

Mummu
(rising mist from the waters)

(brother & sister) Lahamu Lahmu

Anshar = Kishar (brother & sister)

Anu (sky-god)

Damkina = Ea (alias Enki and Nudimmud)

MARDUK

Now it might be wondered why anyone should ever think there could be any relationship at all between that amazing story and the sober, monotheistic account of Genesis 1.2! This will, of course, become more clear shortly, but it was only right to give a full outline of the story so that the reader could form some judgment of the issues. It is not uncommon for students to be told how closely the stories relate, without being given a true glimpse of the textual material on which the allegation is based.

Before we come to the comparisons a few more points must be made.

1. The Babylonian creation story must be taken seriously with a view to grasping its meaning. It should not be laughed out of court as too preposterous to think of twice.

2. This story undergirds the vast phenomenon of non-Hebrew religion in the Old Testament. The religion it spawned was a constant and serious threat to the religion of Israel.

3. The apparent crudity of a cosmology derived from warring gods is only the surface of a philosophical system which, for all its strangeness to the western mind, has held sway in Asia and the East for thousands of years. As we saw, the gods **represented** various natural forces, oceans, the sky, fire, the earth, etc. But to explain this as representation alone is to imply that the Babylonians appreciated the distinction between symbol

and reality and thus had a concept of natural science with the myth stripped away. That, however logical it might appear to our mentality, would be inadequate. Neither is it totally sufficient to say that the Babylonians **personalized** natural forces, although Heidel speaks like this, and it is nearer the truth. It would still imply that the Babylonian mind could intellectually disentangle the actual from the personalized. In fact, if one tried thus to demythologize the Babylonian or Sumerian myths there would be little left that was meaningful and coherent. After all, what coherence can emerge from the story of Marduk creating the heavens and the earth by splitting the body of Tiāmat? To depersonalize the story is to remove the concept of intelligence, design and will from the creation of the world, which neither Babylonian nor Hebrew could accept. And if Tiāmat is merely personalized salt-water ocean, how can one conceive of its being divided and differentiated to issue in a finished creation?

Our appreciation of these myths can only crystallize when we remember that the Mesopotamian world gave rise more to the philosophies and religions of the East than to those of the West. It is now reckoned, for instance, that the people who moved south to settle in the region of the Indus Valley, the cradle of Hinduism, were physically and culturally akin to the peoples who created the first beginnings of the Sumerian civilization in Mesopotamia (7). The period of this migration is estimated variously from 4000-1200 B.C., but it certainly included the period of Babylonian ascendancy. This Aryan people had a religion of gods drawn from daily life, with warring deities and destructive spirits. "Mythical imagery is used to describe the character of the god, who may in fact be the personification of an abstract concept, thus Mithra is the word for Contract. . . ." (8). So it is that the key to understanding ancient Babylonian myth may lie more closely with Hindu than western philosophy.

Hindu philosophy contains the element that the real world is actually illusory, it is unknowable to the intellect. Of course it appears to be real, or empirical, enough in the Buddhist view which says, "Trishnā is the mother and Avidyā the father of all beings." In fact this is to hypostatize certain abstract principles, but it gives the advantage of concreteness in explaining the physical world.

The term **Avidyā** means ignorance, and ignorance only perceives what it believes is physical reality, or truth. By contrast, the right-minded person who truly understands is able to perceive the ultimate reality of entities. So all entities bear two natures, the phenomenal and the noumenous. Wise men are always aware of the ultimate reality lying at the base of the phenomenal world. This is its true nature, lying beyond the usual categories of thought and explanation. This reality which is beyond words can only be discussed in terms of superimposition (9).

I suggest, therefore, that this is the key to ancient myth. The gods are

hypostases of ultimate principles, ultimate realities and forces, which cannot be spoken of in phenomenal, natural categories. So although the discerning ancient mind knew, for instance, that Adad the storm-god did not literally live in the storm, it had no other way of speaking of the intelligent, animating principle, the noumenous reality, of the storm by which it had meaning in an otherwise disordered world (11). He hypostatized the numinous, he superimposed the myth of the gods. The fabric of the myth, the symbolism of the gods, was sufficient expression of the ultimate for the whole overlay of religious language to be acceptable convention for communication. And for practical purposes — political, military, commercial, moral and religious — the myth was believed as reality. This is so evident in the code of Hammurabi (10). For a number of offences, the code tells us, a man was to be thrown into the river. If he survived he was vindicated. This only becomes meaningful when it is remembered that since there would be, as it were, a god in the river, the man was being delivered to the ultimate justice of an animating principle of reality that lay beyond the grasp of ignorance (11).

To make the point now, the **Enūma elish** is what Hooke describes as an “aetiological myth”(12). “Its function is to give an . . . explanation of the **origin** of a custom, a name, or even an object.” In this case, the myth gives a superimposed explanation to the inexpressibly noumenous concept of creation. But to all practical intents it was believed as real. It was that, or nothing.

Old Testament Parallels

Biblical creation material is not confined to Genesis 1—2, for there are many references to creation throughout the Old Testament. Critical scholars trace in these allusions clues as to how the ancient Hebrew people understood creation. And since the Hebrews could not be isolated from the cultural milieu of the region, it is alleged that this contemporary mythical thought emerges throughout the scripture, e.g. Isa.51:9—10; Psalm 89:9—12; Job 9:13—14; 26:12—13; Isa.27:1 (13). Whilst this wider scene must not be forgotten we shall have to confine these present remarks to Genesis alone. Heidel enumerates the parallels and differences in great detail, listing among them:

1. **Divine principles.** The Babylonians and Assyrians assumed two sexually distinct principles, Apsū (masculine) and Tiāmat (feminine). These were father and mother of the gods, but were not the instigators of creation as such, that being left to Marduk. Both these gods also died. “In sharp contrast, Genesis speaks of only one divine principle, existing apart from and independently of all cosmic matter”(14).

2. **The origin of matter.** The Babylonians conceived matter as being eternal. There never was a time when nothing existed except a transcendental deity. So in **Enūma elish** Marduk creates the world by the differentiation of the god/waters of Tiāmat. But Tiāmat was without

origin. In Genesis 1, however, the sovereign will and power of God brought matter into being from non-being (**creatio ex nihilo**). Heidel shows that whereas the Hebrew verb **bārā'**, to create, cannot of itself be pressed to prove creation from nothing, when taken in conjunction with the expression **berē'shith**, in the beginning, it does yield that conclusion. This conceptual difference between Genesis 1 and **Enūma elish** is so marked that no dependence can be proved.

3. **Polytheism and monotheism.** From the Babylonian genesis above we have seen the amazing polytheism operative in creation. The gods were by no means separate from the matter they created but personifications of the vitalizing forces within matter. Genesis 1 asserts a single creator who transcends all things, who is distinct from that which he has made. The Babylonians never held this view.

4. **Primeval chaos.** **Enūma elish** and Genesis 1 both refer to a watery chaos, a feature also found in Egyptian, Pheonician and Vedic (ancient Hindu) literature. In the Babylonian account this is living matter co-ordinate and co-extensive with the gods Apsū and Tiāmat. In Genesis the "chaos" is inanimate matter, distinct from God, made by God, and subsequently differentiated in waters above and below. Whether the **Enūma elish** is really a nature myth based on annual experience of rainfall and floods seems debatable, but climatic conditions in Palestine were such that no such myth could ever have been meaningful to the Hebrews.

5. **Light.** Both accounts refer to light and the alternation of night and day before the creation of the heavenly bodies. However, in **Enūma elish** night and day are already in existence before the revolt among the gods occasioned by the noisy children, which, in point of time, is also before Marduk's creative activity. Apsū also possessed a dazzling radiance of his own. Light also proceeded from Marduk, who was a solar deity. In Genesis day and night also come into existence before the sun and moon, but light itself is a **creation** of God, not a divine attribute. The distinction between light and darkness is denominated day and night, and the biblical passages which relate light to God, as though an attribute, are not derived from Genesis 1.

6. **The Marduk-Tiāmat conflict.** Hermann Gunkel advanced the thesis that evidence of this conflict also emerges in mythical passages in the Old Testament (15). Heidel does not deny that certain figures of speech may have been borrowed from Babylonian myths, but strenuously argues that the content of the terms cannot be identical with the Babylonian usage. The biblical monsters are not pre-existent gods, but crocodiles symbolizing the power of Egypt which God smashed at the Exodus. And inasmuch as crocodiles are reckoned to be formidable creatures, God highlights his superiority and power by asserting (a) that he made the crocodile and (b) that man is puny by comparison, for he cannot breach

this fierce foe. See Job 40, 41. So not only is the symbolism clear, but its setting is entirely temporal, not pre-creation. In no way is there any substantial correspondence with the Babylonian myth.

7. The creation of the luminaries. Marduk's activity in creating and arranging the heavenly bodies reveals a distinct rationale for the importance the Babylonians attached to astrology. For this reason the biblical order is reversed, stars being made first, then the moon and lastly the sun. How important were the signs of the Zodiac! But the Hebrew account takes no cognizance of this. It is completely free of mythological overlay. The nearest the Bible comes to speaking of gates for the sun and its track across the sky is in the poetry of Psalm 19:4–6 where the design is to exalt the wisdom and power of the creator in the ordering of the universe.

8. The creation of man. Although in **Enûma elish** and Genesis man is the final act of creation, there all similarity ends. In the Genesis account man is the highest point of creation, a free, responsible being in God's own image, capable of fellowship with God. Sexual differentiation is introduced in biological creation for the purpose of proliferation. It is not inherent in God. In the Babylonian account man is made as a slave for lazy gods, a contingent convenience rather than highest intention. And man's sexual differentiation was merely a copy of divine originals. Again, in Genesis man is the lord of creation, in a world made for him. In **Enûma elish** Babylon was built for the gods and man's role was the service of the gods.

The last distinction of the mode of creation is obvious. The Bible knows nothing of man made from the blood flowing from the severed arteries of a dying God. Genesis consistently distinguishes the being of God from the material he created. God is not himself a biological original. And the life-giving "breath" of God is so clearly a metaphor of the spiritual impartation of "soul" that it bears little comparison with the inference which may be drawn from the physical use of blood and clay. Heidel concludes, "In the Babylonian stories man's creation is told from the viewpoint of the gods, while in Genesis it is told from the viewpoint of man" (16).

9. The fall of man. Here the disparities can be put in a word. No proof of the first human sin has yet been found in Babylonian or Assyrian literature, though Heidel discusses possible evidence. If it is permissible to speak of a fall, therefore, it is to be found amongst the gods. In Genesis man is created in the perfect image of God, and sin came at the human level. But the Babylonians created their gods in the image of man — to a very marked degree. The Hebrew and Babylonian accounts of the fall have no point of contact. There is a wider point which Heidel does not discuss, and that is the biblical evidence found elsewhere than in Genesis for the pre-temporal fall of Lucifer. And whilst this cannot be pursued now I do not yet see how in any way there is a correlation between this evidence and the Babylonian story.

10. **The power of God.** The efficacy of God's sovereign decree in Genesis is total and complete. The word of his power is supreme. In **Enūma elish** Marduk is able to demonstrate some power to destroy and restore a garment upon verbal command (he does this to impress the other gods with his ability), but he was certainly not almighty. He had to fight Tiāmat, crudely, to overcome her, and shared power with other gods even though his power may have been the greatest.

None of the above differences is simply a superficial variant of detail. They matter because they indicate that the conceptual and philosophical framework of thought was so utterly different between Babylon and Palestine that it really seems pointless further to pursue the theory of dependence. Nonetheless the sequence of points of contact between the two accounts is sufficient to cause us yet to enquire as to some other "genetic relation" between the stories. That the Babylonians borrowed from the Hebrews is extremely unlikely, for their account antedates the Hebrew account even on the most ancient estimates of the dating of the compilation of Genesis. Furthermore, since the Hebrews grew out of the family of Abraham who was himself called out from amongst the Chaldean (Babylonians), the Babylonian story would seem necessarily to have priority in time. Nonetheless, historians of literature generally argue that stories, beliefs and traditions have an oral tradition which precedes the written account. So the origin of the Hebrew account may have been available when the Babylonian myths were compiled. But the argument becomes so speculative that it can produce no proof.

That the Hebrews borrowed from the Babylonians is an idea which scholarship has found popular, but increasingly seems unlikely, as we have seen. But since we have yet to compare the Babylonian and Hebrew flood narratives, where the correspondence is far more suggestive of a close relationship, we shall postpone further consideration of this point.

Heidel suggests that Genesis and **Enūma elish** sprang from a common source, as does Professor I.M. Price of Chicago University, who attributed the common elements of the stories to a time when "the human race occupied a common home and held a common faith"(17). Certainly we concur with his closing remark that the "exalted conceptions in the biblical account of creation give it a depth and dignity unparalleled in any cosmology known to us from Babylonia or Assyria"(18). If we allow Genesis to shape our anthropology such that we recognize the cultural, linguistic and religious unity of the human race from the Flood to Babel, and then look for the diversification of culture, language, religion, colour, distribution, etc., after Babel, we shall have the biblical basis for an historical model in which the truth of events was preserved and ultimately set down in Genesis, and in which the great mass of contemporary religion declined in polytheistic perversion of the truth whereby sinful men reinterpreted God and creation from their own human standpoint.

To follow:

THE HEBREW AND BABYLONIAN FLOOD NARRATIVES

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1. Heinrich Zimmern. Article on Creation. **Encyclopaedia Biblica** (1899), Vol. 1, p.941.
2. T.K. Cheyne. **Ibid**, p.945.
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11. **Ibid**, paras 2, 108, 155.
12. S.H. Hooke, **Middle Eastern Mythology**. Penguin Books, 1963, p.13. The book is weak in its analysis of the meaning of myth, and undiscerning in that Hebrew events are lumped indiscriminately with other ancient mythology. But for a clear summary of all the relevant stories it is very helpful.
13. **The Babylonian Genesis**, pp.102—114. H. Gunkel first collected and discussed this material in his book **Schöpfung und Chaos in Urzeit und Endzeit**, Göttingen, 1895 ("Creation and chaos in beginning and end times").
14. **Babylonian Genesis**, p.89.
15. See again n.13.
16. **Babylonian Genesis**, p.122.
17. **Ibid**, p.139. Quotations from **The Monuments and the Old Testament** (Philadelphia, etc., 1925), pp.129f.
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REVIEWS

CHRISTIANITY WITH A HUMAN FACE

By Randal Macaulay and Jerram Barrs. IVP, 1979. £2.65. Paperback.

What has a book about living the Christian life got to do with a journal concerned with origins? The answer is that the doctrine of sanctification, like so many other doctrines, has its roots in the book of Genesis and in the doctrine of creation. In other words, we will not know what is our aim in life if we do not look at how and why man was made at the beginning. The authors rightly argue that we will fulfil that aim in proportion to how we understand what it is to be made in God's image. To be 'like God' is not simply a call to be sinless, but is also (on the positive side) a call to enter into personal relationships, to express love, to be creative and to think and reason. The book, then, is a plea for us to be what we are, namely (alone in all creation) made in the image of God, to be human in the fullest sense of the word. If sin has marred that image let us not forget that being a Christian is about restoring it (Col.3:9–10).

With this as the thrust of their message the authors have to take to task much of modern day evangelicalism for a too narrow view of its calling and of what it regards as 'spiritual'. Too often, instead of viewing the Christian life as 'life and liberty, recovery and restoration' it has portrayed it as 'a life of dullness and dryness, of repression and rigidity'.

The book reminds us that non-biblical philosophies, failing to reckon

The book reminds us that non-biblical philosophies, failing to reckon with man as being in the image of God, inevitably dehumanise man and human experience. The materialist devalues and denies the spiritual, the 'platonist' so elevates it as to despise the material. The tragedy, however, is, as the authors show, that these dehumanising trends have rubbed off on evangelicals. Either they drift into an anti-supernaturalist attitude (quite apparent in the way they treat Genesis 1–3), or even more commonly, they adopt a suspicion of large areas of human experience which they label as 'secular'. For example they will scorn the mundane, reject culture and question recreation or anything pleasurable to the body senses, instead of ensuring that in entering into these things we assert what is distinctively human. As the authors conclude, 'spirituality involves the whole of human life; nothing is non-spiritual. . . . every area of our life is to express the relationship we have with (God)'.

Another important area which the authors identify as stemming from a failure to grasp the significance of being made in the image of God is our attitude to the mind. It is true we live in a world dominated by rationalism, where the mind asserts its lordship over all and what cannot be

understood and explained (e.g., creation) is rejected as non-scientific superstition. No wonder some evangelicals withdraw from argument and debate, perhaps excusing themselves with some thought that you cannot argue anyone into the kingdom as only God can convert. The latter statement is not denied by the authors, but they are right to quote Machen's prior qualification 'We must do our utmost to give people good reasons why they should believe but it is the Holy Spirit who opens their minds to attend to the evidence'. To fail to enter into the arena of modern debate on issues such as creation would be, in the authors' eyes, to deny one of the very wonders of creation, namely that in making us in his image God gave us a mind to reason with and to use, as we assert with Paul 'what I am saying is true and reasonable' (Acts 26).

This book, therefore, apart from being a useful guide to what the Christian life is all about and how we should live it in all its richness, is also a reminder that what societies like the **BCS** are contending for is not just the truthfulness and historicity of one corner of the Old Testament, but for something which lies at the very foundation of Christian living.
Bruce Baker.

THE EARTH, THE STARS AND THE BIBLE

By Paul M Steidl. Presbyterian and Reformed Publishing Co. Phillipsburg N.J. (1979). 250pp. \$5.95.

This volume merits very high praise as a much needed Creationist evaluation of modern Astronomy. The author is a Christian astronomer who considers the Bible to teach a 'young' universe. That is, that little more than 10,000 years have elapsed since the creation of the heavens and the earth, as in Genesis 1 v.1. This is the basic cosmological conclusion the author derives from Scripture. In this book Mr Steidl does not deal with the history of cosmological ideas. Nor does he fully analyse the nature and significance of the Biblical world-picture or counter the allegations that this is derived from ancient near-eastern mythology. His stance is one of confidence in Biblical statements straightforwardly understood. The Biblical perspectives in this book include a pervasive awareness of the glory, power and wisdom of the LORD God displayed in the heavens and of the subtle ways in which men have constructed particular models of the universe designed to make the Creator redundant. Mr Steidl is not afraid to use strong language where necessary: "Satan has been hard at work to eliminate God from science and in the steady-state theory he has achieved the ultimate." (p.196).

Within this Christian framework the author sets out a technical but non-mathematical discussion of modern scientific astronomy. Mr Steidl has a pleasing style and although the discussion is necessarily involved in places he is a skilful teacher. In the earlier chapters simple explanations are given of such matters as the spectral analysis of light and of Doppler shifts in wavelength.

Theory plays a very important role in astronomy, for there are distinct limitations on the type of experimental information which may be gathered. Simplifying assumptions must be made on every hand when constructing models of stars, clusters and galaxies. When these assumptions are governed by overall evolutionary considerations it becomes necessary for creationists to re-evaluate the raw data. Mr Steidl has set out an invaluable guidebook to these problems. In every chapter he distinguishes the “facts” from the interpretations and points out how astronomers regularly bring in extra assumptions and special pleading in order to shore up their favourite cosmological models — such as the Big Bang theory. In many instances the recent-creation model is seen to suggest workable solutions to some of the difficult questions that arise. Particularly we should mention chapters 7–12 on the formation of the solar system, stars and galaxies and on problems of time and cosmology.

One perennial question is asked by Christians. How is it that we can see light which has travelled from the most distant stars if the Universe is only 10,000 years old? Several possible answers have been given but Mr Steidl inclines to the hypothesis that the speed of light may not always have been a constant value but was much higher during, and possibly after the creation epoch, from which it has now decreased to a constant level. That change should be postulated in such a fundamental “constant” is not without significant precedent. It has been suggested that the Newtonian gravitational constant, G , is decreasing very slightly with time, leading, for example, to a decrease in gravitational attraction between the earth and the moon.

This volume is primarily addressed to Christians. It is to be hoped that it will be widely read and that many doubting evangelicals will come to see that there are no solid grounds in Astronomy for denying the possibility of a “young” universe. Perhaps many Christian students will be stimulated to pursue these important and fascinating topics further. Mr Steidl has wisely stated where apparent difficulties yet remain for the “young” universe viewpoint. These may be elucidated in the future, though we should not be surprised if problems remain!

This is now the leading creationist volume with overall coverage of the **scientific** aspects of Astronomy. On this level it invites comparison with Whitcomb and Morris’ reappraisal of Historical Geology in **The Genesis Flood**.

David C. Watts

CLUES TO CREATION IN GENESIS

By P.J. Wiseman. Marshall, Morgan and Scott, London, 1977:
viii 232 pp., £2.95.

This interesting book is a re-issue and combination of two books written some years ago, viz., **New Discoveries in Babylonia about Genesis** (1936) and **Creation Revealed in Six Days** (1946). The thesis that unites them is the conviction that the literary character of Genesis proves it is a reliable record of the early history of creation. For convenience the two parts of the volume may be considered separately.

The first part, now entitled **Ancient Records and the Structure of Genesis** develops the theory that Genesis bears the marks of ancient literature. The basis of the argument is that many early civilizations were very advanced (ch.3). In particular, it is argued, the art of writing was known very early, and numerous examples of inscriptions on tablets are referred to (ch.4). Applying these facts to Genesis, the author attempts to show that it is a compilation (by Moses) of information written down, on tablets, by the earlier inhabitants of the earth, and in particular, the patriarchs (chs. 5,6).

Numerous arguments are adduced in support of the theory. The most important of them is the author's belief that the recurring formula 'These are the generations of . . .' (2:4, 5:1, 6:9, etc.; pp. 34ff.) is an example of the colophon on ancient tablets, i.e. a brief statement giving information about the writer and circumstances of the writing. Gn 2:1–4, therefore, constitute a colophon to Gn 1, saying that it was written by God when creation was finished (p.57). Supporting arguments for the antiquity of Genesis (and the Pentateuch in general) are the use of Babylonian words and features (pp.46, 52ff.), and what the author considers an archaic "feel" to the writing, e.g. the fact that there are as yet no names for the sun and the moon in Gn 1 (p.58), and that Sodom and Gomorrah are still known as existing cities in Gn 10:19 (p.47).

In some ways this part of the book says rather important things. In a general way, the reading of Genesis against a backcloth of ancient culture and writing is a necessary corrective to the widely held critical view that it is a rather late collection of traditions and fictions. It is true that Genesis does have numerous points of contact with other ancient records (especially the creation and flood narratives). For a time recently, and with some justice, it was even fashionable to think that the course of second Millenium history provided an authentic background for the patriarchs (Abraham, Isaac and Jacob), and that they were likely to have been historical figures; and this among scholars who would not necessarily have held to a straightforward evangelical view of the authority of Scripture. This opinion is now less fashionable, though still tenable.

The specific arguments of the book are not so convincing however. Many of the so-called evidences of antiquity (e.g. the failure to name the sun in Gn 1) do not really prove anything, and could be read as deliberate archaizing. The urging of this sort of thing as evidence or proof is typical of a tendency in the book to overstate the case and weaken the general position.

More important than this, however, is the weakness of the central argument based on Ancient Near Eastern colophons. Despite the author's attempt to take issue with the prevailing view about the phrase 'These are the generations of . . .' (pp.34ff.), he does not prove that it is a closing rather than an introductory formula. In its every occurrence, including Gn 2:4a, the actual reference of the phrase is forward. While, therefore, there is nothing implausible about the idea that Genesis was originally written on tablets, close in time to the events related, the structure of the book does not actually prove this.

The second, perhaps less important, part of the book may be dealt with more briefly. Taking issue with two widely held interpretations of the six days of Gn 1, viz., i) that God created in six 24-hour days, and ii) that the days are equivalent to geological eras, the author presents an unusual (though not entirely original) view. The days, he believes, are indeed literal 24-hour days. Gn 1, however, does not teach that on those days God was **creating**, but rather that he was revealing to Adam the stages of creation. This also explains the seventh day's rest. Surely, the author **urges**, we are not to believe that God himself rested. Rather the rest was intended for Adam. (See especially pp.133ff.) The author's view is, then, that the Bible nowhere says that creation took place in six days.

What then of Exod. 20:11? — 'for in six days the Lord made heaven and earth, the sea and all that is in them'. Here the author brings forward an argument on which most of the thesis of the second part of the book depends, namely that the verb 'āśāh, translated 'made' in the RSV (quoted above), really means 'showed' (pp.129ff.). This is the exegetical justification of the position outlined in the preceding paragraph. The interpretation, however, is based on false analogies, and in fact 'āśāh cannot mean 'reveal' or 'make known' as the theory requires. The book does not help us, therefore, towards an understanding of the meaning of the days of creation. (On this see **BC3**, pp.85f.).

In sum, it may be said that the book is an attempt to do something useful, i.e. to place Genesis against the background of world history. It is entirely plausible that the material which composes Genesis was handed down by contemporaries of the events recorded according to the prevailing methods. But it would be a mistake to think that the theory advanced has been proved by the arguments offered. We may say of the first part of the book that it has a good idea and presents a possibility. The second part adds little to this.

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